

## WIND.

The *prevailing winds* for November, 1896, viz, those that were recorded most frequently, are shown in Table I for the regular Weather Bureau stations.

The *resultant winds*, as deduced from the personal observations made at 8 a. m. and 8 p. m., are given in Table IX. These latter resultants are also shown graphically on Chart IV, where the small figure attached to each arrow shows the number of hours that this resultant prevailed, on the assumption that each of the morning and evening observations represents one hour's duration of a uniform wind of average velocity. These figures indicate the relative extent to which winds from different directions counterbalanced each other.

## HIGH WINDS.

*Maximum wind velocities* of 50 miles or more per hour were reported during this month at regular stations of the Weather Bureau as follows (maximum velocities are averages for five minutes; extreme velocities are gusts of shorter duration, and are not given in this table):

Stations.	Date.	Velocity.	Direction.	Stations.	Date.	Velocity.	Direction.
		Miles				Miles	
Amarillo, Tex.....	5	56	s.	Fort Canby, Wash.....	12	80*	s.
Do.....	26	52	w.	Do.....	13	66*	s.
Bismarck, N. Dak.....	26	54	nw.	Do.....	14	76	s.
Do.....	27	51	nw.	Do.....	30	58	se.
Buffalo, N. Y.....	5	66	w.	Huron, S. Dak.....	22	56	se.
Do.....	6	72	w.	New York, N. Y.....	5	52	se.
Do.....	11	56	s.	Do.....	14	50	nw.
Cairo, Ill.....	26	51	s.	Rapid City, S. Dak.....	16	54	sw.
Chicago, Ill.....	27	53	w.	Sault Ste. Marie, Mich.	8	52	nw.
Detroit, Mich.....	5	52	sw.	Tatoosh Island, Wash.	12	50	s.
Fort Canby, Wash.....	1	83	se.	Do.....	14	50	w.
Do.....	4	60	se.	Do.....	19	50	e.
Do.....	7	58	s.	Winnemucca, Nev.....	9	50	sw.
Do.....	8	58	s.	Woods Hole, Mass.....	15	52	sw.

## ATMOSPHERIC ELECTRICITY.

Numerical statistics relative to auroras and thunderstorms are given in Table X, which shows the number of stations from which meteorological reports were received, and the number of such stations reporting thunderstorms (T) and auroras (A) in each State and on each day of the month, respectively.

*Thunderstorms.*—The dates on which reports of thunderstorms for the whole country were most numerous were: 3d, 41; 12th, 53; 25th, 73; 26th, 45.

Thunderstorm reports were most numerous in: Illinois, 33; Louisiana, 36; Nebraska, 31; Tennessee, 37.

Thunderstorms were most frequent in: Illinois, 9 days; Louisiana, 13; Mississippi and Texas, 10.

*Auroras.*—The evenings on which bright moonlight must have interfered with observations of faint auroras are assumed to be the four preceding and following the date of full moon, viz, from the 15th to the 23d, inclusive. On the remaining twenty-one days of this month 52 reports were received, or an average of about 2.5 per day. The dates on which the number of reports especially exceeded this average were: 5th, 5; 6th, 12; 7th, 8.

Auroras were reported most frequently in: Massachusetts and Nebraska, 4 days; Ohio, 8; Wisconsin, 6.

The number of reports was a large percentage of the number of observers in: Delaware, 33; Rhode Island, 12; Wisconsin, 10; South Dakota, 7; Ohio, 6.

## CANADIAN REPORTS.

Thunderstorms were reported from Rockcliffe and Parry Sound on the 18th.

Auroras were reported as follows: Grindstone, Grand Manan, Charlottetown, Father Point, and Prince Albert, 7th; Minnedosa, 13th, 18th; Qu'Appelle, 19th, 20th; Medicine Hat, 8th; Swift Current, 22d; Battleford, 6th, 7th; Banff, 5th, 6th, 9th.

## CLIMATE AND CROP SERVICE.

By JAMES BERRY, Chief of Climate and Crop Service Division.

The following extracts relating to the general weather conditions in the several States and Territories are taken from the monthly reports of the respective services.

Snowfall and rainfall are expressed in inches.

*Alabama.*—The mean temperature was 57.6°, or 4.7° above normal; the highest was 90°, at Healing Springs on the 12th, and the lowest, 14°, at Hamilton on the 29th. The average precipitation was 4.20, or 0.36 above normal; the greatest monthly amount, 7.67, occurred at Elba, and the least, 0.54, at Pineapple. There has been rain sufficient to give navigable stages to the larger rivers, and the scarcity of water of October and preceding months is relieved to a great extent by the heavy showers of the first and latter part of the month.

*Arizona.*—The mean temperature was 55.2°, or 0.2° above normal; the highest was 98°, at Maricopa, and the lowest, 10°, at Holbrook on the 30th. The average precipitation was 0.73, or 0.12 below normal; the greatest monthly amount, 3.60, occurred at Maricopa; no rain fell at Casa Grande, 20 miles southeast of Maricopa.

*Arkansas.*—The mean temperature was 52.8°, or 2.9° above normal; the highest was 88°, at Picayune on the 10th and Elon on the 11th, and the lowest, 8°, at Keesees Ferry on the 30th. The average precipitation was 4.33, or normal; the greatest monthly amount, 9.51, occurred at Arkansas City, and the least, 1.26, at Fulton.

*California.*—The mean temperature was 52.1°, or 1.3° above normal; the highest was 97°, at Pomona on the 15th, and the lowest, 17° below zero, at Bodie on the 27th. The average precipitation was 4.39, or 1.96 above normal; the greatest monthly amount, 23.87, occurred at La Porte, in the mountain regions of Plumas County, and the least, "trace," at Needles, in the desert regions of San Bernardino County.

*Colorado.*—The month was marked by unusually high and low temperatures, the former occurring generally on the 15th and 16th east of the Continental Divide, and the latter from the 25th to the close of the month throughout the State. The highest was 83°, at Minneapolis

(in the southeastern section of the State) on the 16th, and the lowest, 25° below zero, at Breckenridge and Steamboat Springs on the 28th, and Hot Sulphur Springs on the 29th. The average precipitation was 0.69, or 0.09 below normal; the greatest monthly amount, 9.30, occurred at Ruby, while none fell at several stations.

*Florida.*—The mean temperature was 70.1°, or nearly 4.0° above normal; the highest was 90°, at Orange Park on the 3d and Plant City on the 12th, and the lowest, 34°, at Pensacola on the 30th. The average precipitation was 3.33, or 0.37 above normal; the greatest monthly amount, 13.17, occurred at Milton, and the least, 0.64, at Frostproof.

*Georgia.*—The mean temperature was 58.5°, or about 4.8° above normal; the highest was 85°, at Fleming on the 12th; the lowest, 22°, at Diamond and Ramsey on the 9th. The average precipitation was 5.72, or 2.62 above normal; the greatest monthly amount, 11.89, occurred at Clayton, and the least, 2.18, at Albany.

*Idaho.*—The mean temperature was 29.4°; the highest was 80°, at Payette on the 1st, and the lowest, 38° below zero, at Chesterfield on the 26th. The average precipitation was 3.75; the greatest monthly amount, 11.12, occurred at Murray, and the least, 0.73, at Burnside. The month opened with rainfall and mild temperatures in all parts of the State; these conditions were the rule, with slight variations, until the 26th, when a sudden and severe cold wave was experienced, accompanied by high winds and heavy snowfall; the month closed with intensely cold weather prevailing in all sections. At the end of the month the entire State, except the extreme southern section, was covered with snow in depths ranging from 2 to 22 inches, the latter being reported at Lake.

*Illinois.*—The mean temperature was 40.4°, or 1.3° above normal; the highest was 80°, at Mount Vernon on the 17th and Rose Hill on the 2d and 17th, and the lowest, 2° below zero, at La Harpe on the 28th and Scales Mound on the 30th. The average precipitation was 2.72, or 0.42 below normal; the greatest monthly amount, 6.92, occurred at Rose Hill, and the least, 0.65, at Reynolds.

*Indiana.*—The mean temperature was 44.2°, or 3.2° above normal;